

November 19, 1951

Dr. C. C. Spicer
Central Public Health Laboratory
Colindale Avenue
London NW 9, England.

Dear Dr. Spicer:

Thank you for your letter of the 15th with its information and generous offer of serum samples.

We have in fact initiated an immunogenetic study of *E. coli*: Dr. P. David Skaar, recently qualified for his Ph.D. in Dr. Sonneborn's laboratory, has been collaborating with me on it. The very reason we had not undertaken this before is well stated by your own experience with K-12. It has been under laboratory cultivation for 30 years, and in the absence of any special precautions, it is not surprising that it is so rough. We have no decent antisera left, for I was quite successful in killing most of my rabbits: K-12 seems to be more than usually toxic. I would therefore be quite grateful for samples as large as you can conveniently spare and ship of your H and K sera. The O- situation is not hopeful. Kauffmann himself was not able to type K-12 satisfactorily. If you have any sort of reagent at all for the O antigen, however, it might be useful in later work.

The basis of our current work is the isolation of some thirty strains (from over a thousand trials) which appear to cross with K-12. They were isolated by the procedure described in the enclosed reprint. The interfertile strains are serological quite diverse, those which have been tested carrying different O antigens. We have prepared sera against some of these, and are now intercrossing different types with each other, and with K-12. I should not be entirely surprised if some f-1 progeny of K-12 show an intensification of its original O-antigen.

You may be interested in some of our recent findings with *Salmonella* (with Mr. N. Zinder). This group has a rather different mechanism of recombination from *E. coli*, resembling in some respects the pneumococcus "transformation". Be that as it may, we have picked up what might be termed a serological hybrid of *S. typhi* x *typhimurium*: IX, XII, i;—. We are working on the possibility of generating other recombinations of *Salmonella* antigens.

Yours sincerely,

Joshua Lederberg
Associate Professor of Genetics